



United States
Department of
Agriculture

Forest
Service

Monongahela
National Forest

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MONONGAHELA NATIONAL FOREST



MONITORING & EVALUATION FY 2000 REPORT

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INTRODUCTION

✚ An extensive analysis of long-term management opportunities, resource capabilities, and multiple public needs was conducted for the Monongahela National Forest (MNF) in the 1980's. It was documented in the *Final Environmental Impact Statement for the MNF Land and Resource Management Plan (FEIS)*.

✚ This analysis resulted in the *Monongahela National Forest Land and Resource Management Plan (Forest Plan)*, which was approved in 1986 and amended five times since.

✚ The *Forest Plan* accomplished the following:

- Allocated land to specific management prescriptions.
- Identified long-term management objectives ("desired future conditions").
- Specified Forest-wide and area-specific standards and guidelines to provide multiple, sustainable benefits for people's advantage and enjoyment.

✚ To ensure objectives are being met and standards and guidelines are being followed, the Forest monitors program activities.

✚ This year's Monitoring and Evaluation Report features the monitoring efforts of just a few of the many programs managed by the MNF.

✚ Chapter I **depicts the historical context** of MNF programs and answers the question, "**Where have we been?**" Chapter II **summarizes some of the monitoring completed in Fiscal Year 2000 for featured programs**; and Chapter 3 identifies **what action, if any needs to be taken in the future**.

✚ I have evaluated the monitoring results, and directed that the recommendations in this report be implemented as time and funding allow, unless new information or changed resource conditions warrant otherwise.

✚ This monitoring indicates that the *Forest Plan* is sufficient to guide forest management for FY 2001, unless ongoing monitoring and evaluation identify a need for change.

✚ Any amendments or revisions to the *Forest Plan* would be made using the appropriate NEPA procedures.

/s/ Dallas Emch

Dallas Emch
Acting Forest Supervisor

This publication is available in large print upon request.

CHAPTER I

THE HISTORICAL CONTEXT FOR MONITORING

1. THE MNF'S ROLE IN CONSERVING DIVERSITY

Four broad goals related to the conservation of biological diversity are identified on pages 37-38 of the *Forest Plan*:

1. Improve the diversity of plants, animals, and stand conditions, emphasizing habitat needs for wild turkey, black bear, and associated species.
2. Maintain open areas of National Forest land for forage, wildlife, and visual purposes.
3. Manage habitat to help recovery of threatened and endangered species on the Forest. Protect sensitive and unique species until their populations are viable.
4. Cooperate with, and coordinate plans with, other Federal, State, and local agencies and with private groups to improve the management of natural resources and reduce potential conflicts (*Forest Plan*, page 39).

DIVERSITY OF VEGETATION

The MNF is located in the eastern highlands of West Virginia. It is mountainous and ranges in elevation from 900 feet at Petersburg to 4,861 feet at Spruce Knob (the highest point in WV).

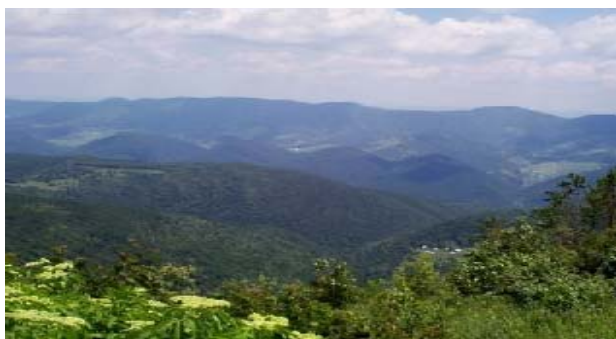


Figure 1. View from Spruce Knob.

The Forest is noted for its rugged landscape with spectacular views, blueberry thickets, open areas with exposed rocks, and highland bogs.



Figure 2. View of Seneca Rocks.

The eastern section of the MNF is in the Ridge and Valley physiographic province; it has low elevation valleys interspersed with ridges running northeast to southwest. The western portion of the Forest is in the Allegheny Plateau province. The Allegheny Front separates these provinces and creates a rain shadow effect.

This rain shadow effect results in 60 inches of annual precipitation on the west side of the Forest and about half that on the east side. This range of precipitation makes it possible for a wide array of botanical species to thrive on the MNF—including rhododendron and laurel on the moist west side of the Allegheny Front and cactus and endemic shale barren species on the drier eastern slopes. In areas of ample rainfall and productive soils, the Forest also yields excellent tree growth and timber potential.

Humans are known to have lived in the West Virginia mountains from 12,000 BC or earlier. Over time, changes in human use and natural catastrophes have led to variations in vegetation

diversity and contributed to the vegetative conditions that exist on the Forest today.

✚ For example, at one time, much of the land in West Virginia was forested and red spruce was much more common; “At least 445,000 acres of red spruce occurred within the Monongahela National Forest” (Clarkson 1966). However, massive timber cutting, destructive flooding, and intense fires at the turn of the 20th century drastically altered the West Virginia landscape.

✚ Congress responded to this devastation of terrestrial and aquatic ecosystems by passing the Weeks Act in 1911. This Act authorized the purchase of land in West Virginia and other eastern States for natural resource management and long-term watershed protection.

✚ The lands that were purchased in the early 1900’s and later designated as the MNF had been severely impacted; they were referred to as the “lands that nobody wanted.” To rehabilitate them, early management activities focused on reforestation and fire suppression.

✚ These management efforts helped vegetation on the MNF to make a striking recovery. Currently, the MNF is 96% forested. The rest of West Virginia also has recovered from 20th century events. West Virginia has gone from being 64 percent forested in 1949 to 79% forested today; it is now the third most forested state in the continental United States.

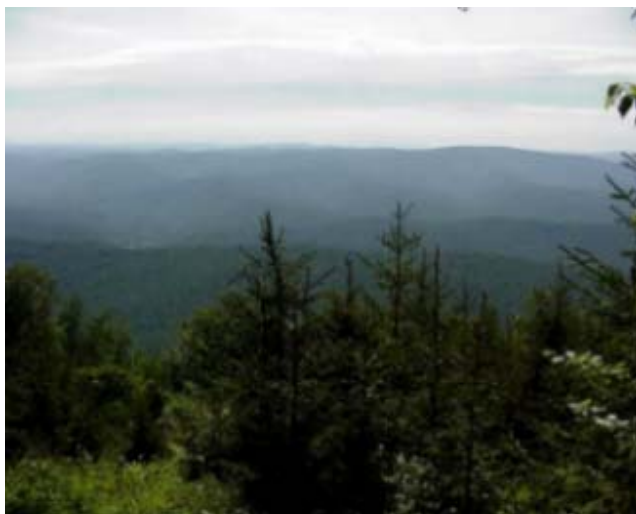


Figure 3. View of the forested landscape from Gaudineer Overlook.

✚ About 7 percent of the MNF is 105 years old or older. Turn of the century events left the Forest with a skewed age class distribution.

✚ Over seventy-two percent of the trees on the Forest are second-growth forest between 61-105 years old, 38 percent of which are 76-90 years old. Little timber harvesting has occurred on MNF lands since they were purchased so that only about 11 percent is 60 years old or less.

✚ Vegetation types of the MNF and the relative abundance of different species also changed after turn of the century events. A very complex and diverse hardwood ecosystem has replaced the climactic vegetation that once existed.

✚ Approximately 75 tree species currently exist on the MNF. Conifer species are not as common as they once were.



Figure 4. Fall view depicting the percentage of conifer versus deciduous species on the MNF today.

✚ Much of today’s Forest consists of early to mid-successional vegetation types. Northern hardwood trees merge on the MNF with oak-hickory timber typical of the Ohio Valley and trees from the south.

✚ To ensure some of the diversity that exists on the Forest today is preserved, but also to allow climactic vegetation to increase on the Forest over time, the *Forest Plan* assigned lands to various management prescriptions. Lands were allocated in such a way so that a wide range of vegetative conditions will be retained throughout the MNF to provide multiple wildlife species the various habitat elements they need.

✚ Five wildernesses (78,131 acres) and 17 Management Prescription 6.2 areas (about 124,491 acres) were designated and distributed across the Forest where biodiversity normally would not be managed. In these areas, nature has been the primary agent affecting diversity.

✚ On other acres, the MNF cooperates with multiple state and federal agencies and interested publics and conservation groups to incrementally influence forest species composition. Bio-diversity on these acres may be managed by—

- Thinning over-stocked stands, releasing them from vegetative competition and improving the vigor of remaining trees.
- Regenerating 70+ year-old stands to create & distribute under-represented age classes (those <60 years old) across the Forest.
- Using even-age management to ensure mast-producing tree species (black cherry and oak, highly valued for wildlife and timber products) are perpetuated.
- Maintaining openings via grazing, prescribed fire, mowing, etc. for wildlife.

✚ These activities help meet *Forest Plan* direction of providing wildlife habitat, protecting threatened and endangered species habitat, and promoting forest health and timber products.

DIVERSITY OF ANIMALS

✚ Some species, like elk, no longer exist in West Virginia as a result of habitat destruction and unregulated hunting that occurred at the turn of the 20th century. Mountain lions, once common in WV, are thought to be extirpated. The following are the approximate number of species that exist across WV today:

Amphibians	49 species
Birds	300 species
Butterflies	130 species
Fish	184 species
Mammals	72 species
Reptiles	42 species

✚ Many of these species also occur within the 10 wildlife management units of the MNF, which are cooperatively managed with the WV Division of Natural Resources (WVDNR).



Figure 5. Red spotted newt.

✚ When the *Forest Plan* was approved, the MNF was home to approximately 370 species of vertebrate wildlife. Today, about 230 species of birds use the Forest—159 of which breed in the MNF; 89 of which are Neotropical migrants; and 71 species of which use the forest during migration but do not breed here; and 17 of which are non-breeding species of Neotropical birds.



Figure 6. View of a turkey nest.

✚ Approximately 82 fish species are known to use the streams that flow through the MNF -- 12 species of game/pan fish and 60 species of nongame/forage fish. The MNF has 129 miles of warm water fishing and 576 miles of trout streams; 90% of the trout waters of West Virginia are within the Forest.

✚ Coyotes, skunks, opossums, woodchucks, crows, and weasels are common on the Forest. Populations of game species (black bear, deer, wild turkey, beavers, otters, and several predators) and furbearers (beaver, red fox, gray fox, bobcat, fisher, otter, raccoon, and mink) also are steadily increasing. It has taken time for these species' populations to recover from the decades of unregulated hunting they once were subject to and for habitat conditions on the MNF to recover from turn of the century events.

✚ Forest management activities in support of animal diversity include establishing grassy openings, creating early successional habitat, and protecting special habitats and riparian areas. These management activities have helped meet *Forest Plan* direction by improving habitat for management indicator species (Appendix L).

THREATENED & ENDANGERED SENSITIVE SPECIES

✚ The MNF provides habitat for nine federally listed endangered or threatened species: one bird species, two bat species, 1 subspecies of flying squirrel, 1 salamander species, and four plant species. About 87 sensitive/rare plant and animal species also occur in the Forest.



Figure 7. View of a sensitive species.

✚ The following table lists the threatened and endangered species that occur on the MNF and compares their 2000 Federal status under the Endangered Species Act of 1973 with their status at the time of *Forest Plan* approval in 1986:

Species Common Name	Year Listed	Status in 1986	Status in 2000
Bald Eagle	1967	Endangered	Threatened
Indiana Bat	1967	Endangered	Endangered
Virginia Big-eared Bat	1979	Endangered	Endangered
WV Northern Flying Squirrel	1985	Endangered	Endangered
Cheat Mountain Salamander	1989	Being Considered for Listing	Threatened
Running Buffalo Clover	1987	Endangered	Endangered
Shale Barren RockCress	1989	Being Considered for Listing	Endangered
Small Whorled Pogonia	1982	Endangered	Threatened
Virginia Spirea	1990	Not Listed	Threatened

✚ Past conservation measures implemented as a result of the Endangered Species Act of 1973 have made a difference in the survival of some species. For example, both the WV northern flying squirrel (previously known as the Virginia northern flying squirrel) and running buffalo clover currently are being considered for down-listing to threatened status.

✚ The bald eagle and the small whorled pogonia (which were originally listed as endangered) already have been down-listed to threatened status, and the Peregrine Falcon (a sensitive species that once was threatened) was de-listed in 1999. The bald eagle is currently being considered for de-listing.

✚ Existing *Forest Plan* standards/guidelines, as amended, protect special habitats and allow management of all the types of habitat needed by federally listed species. Activities that protect populations and enhance habitats for these species are carried out under general guidance provided in the current *Forest Plan*, as amended.

✚ As information about the status and needs of threatened, endangered, and sensitive species continues to evolve over time, the Forest assesses existing management activities and, as

needed, modifies or mitigates them to ensure protection of these species.

2. THE FORESTS' CONTRIBUTION TO THE MAINTENANCE OF THE PRODUCTIVE CAPACITY OF FOREST ECOSYSTEMS.

✚ Four goals related to maintaining the productive capacity of forest ecosystems are outlined on page 38 of the *Forest Plan*:

1. Manage the vegetation on the Forest, according to sound professional procedures, in order to provide a sustained yield of timber, benefit other resources, and support the local economy with concern for environmental protection and cost efficiency. Both silvicultural systems and all harvest methods will be used, however, even-age management will predominate in order to provide long-term wildlife and timber quality benefits. Long rotation ages will normally be used to achieve large tree sizes. Conifers will be managed in mixed hardwood stands where possible.
2. Provide a stable supply of Forest products to dependent wood using industry. Encourage the development of secondary wood using industries in WV. Encourage cable harvesting technology in the logging industry.
3. Make minerals available for exploration and development consistent with other appropriate resource uses and protection of the environment. Emphasis will be on energy producing minerals.
4. Maintain open areas of National Forest land for forage, wildlife, and visual purposes.

TIMBER RESOURCES

✚ Before massive timber cutting and fires prevailed in the late 1800's and early 1900's, trees on what is now the MNF were much older. Today, only about 7 percent of the Forest is over 105 years old. Over 70% is 61-105 years old.



Figure 8. View of Gaudineer Scenic Area, where some of the oldest trees on the MNF are dying out over time; a new stand type is emerging.

✚ At one time, conifer covered just over half the land that is now the MNF. Today, conifers (pine species, hemlock, red spruce, balsam fir, tamarack, white spruce, and Norway spruce) compose less than 6 percent of the Forest.

✚ Currently, northern hardwoods (sugar maple, beech, yellow birch, basswood, yellow poplar, American beech, aspen species, black cherry, etc.) dominate the Forest, covering 60 percent of the MNF. Oak species, possibly in combination with white or yellow pine, make up 32 percent.

✚ Over time, if unaffected by climactic changes, natural catastrophes, and human management, the percentage of oak species will decline and northern hardwood species and conifer will increase on the Forest.

✚ For example, white pine and red spruce already appear to be increasing naturally. Given enough time, over 50% of the Forest has the potential to succeed to a red spruce community (Clarkson 1966). About 15% of the eastern part of the Forest could succeed to white pine. Also, hemlock is likely to be a major component of

stands in the future because the absence of fire is allowing it to increase naturally.

✚ Managing a diverse mix of species and ages of trees is important for maintaining the productive capacity of the forest ecosystem, but it is also necessary for conserving biological diversity and meeting the needs of society.

✚ A variety of uneven-age and even-age cutting techniques have been used to manage forest diversity--from cutting single trees from a stand to clearcutting up to 25 acres.



Figure 9. View of a two-age cut in Pocahontas County.

✚ However, even-age management is the preferred technique because it is a reliable method for regenerating black cherry and oak species (the two most valuable species from a wildlife mast and timber product perspective).

✚ Of the more than 909,000 acres on the MNF, regeneration cuts (clearcuts or other treatments designed to start a new timber stand) occur on approximately 1,400 acres annually. This management has helped increase early successional habitat for wildlife to about 11 percent of the Forest; about 100,000 acres of the MNF are currently 1-60 years old.

✚ The annual average value of timber harvested from the MNF has been \$7.5 million. During the planning process for the *Forest Plan*, it was estimated that the MNF would be able to increase its timber volume offered over time from 41.9 Million Board Feet (MMBF) in 1984 to 49.8 by 2000. Since *Forest Plan* approval, the Forest's commercial timber sale program has

averaged 29 MMBF (million board feet) of timber sold per year—20 MMBF less than projected for the year 2000. Timber volumes are likely to continue declining for reasons explained in Chapter III of this report.

FOREST BOTANICAL PRODUCTS

✚ At the time the *Forest Plan* was approved, approximately 1,500 species of plants were thought to occur on the MNF. While the *Forest Plan* does not contain goals or desired conditions related to collecting and selling plants from the Forest, the practice has a long tradition across the mountains of the Southern Appalachians.

✚ The MNF has been administering a botanical products program for many years. Moss, ginseng, and black cohosh are among the most widely collected botanical products.



Figure 10. View of tree moss.

✚ Little is known regarding sustainable levels of harvest and rates of growth and reproduction of the plants being collected. Ginseng is thought to be much less prevalent than 100 years ago, while the comparative abundance of many others is not well known.

MINERAL RESOURCES

✚ In 2000, 88 energy-related mineral operations were active on the Forest. Over 60 percent of the minerals under MNF lands are federally owned. The remaining minerals are privately owned.

✚ During *Forest Plan* development, 150 million tons of economically recoverable bituminous

coal was estimated to exist under the MNF. The Forest had identified 55 potential coal mine portal sites from which this coal could be mined.

The Forest is not expecting to see near-term significant coal mine development because coal reserves are scattered and would be costly to develop due to the geologic settings involved. However, pending the availability of funding, there are plans to restore certain areas that have been impacted by past coal mining.

Natural gas occurs on the Forest. The Gladys Gas Storage field was established prior to *Forest Plan* development. Its operations are expected to continue (with maintenance and updating of existing approved facilities) but no plans for future expansion are anticipated at this time.

With rising natural gas prices, gas leasing and development has been increasing over time. It has been focused in certain areas of the MNF, particularly the northern half.



Figure 11. View of a MNF gas well.

For example, Horton Block gas well development (Cabot Oil and Gas Corporation near Thornwood, WV) has been drilling 1-3 wells per year and is expected to continue on this schedule for several years.

Overall, the anticipated gas exploration and development has been, and will likely continue to be, within predicted levels (Environmental Assessment Oil and Gas Leasing and Development, August 1991), even with recent increased interest in MNF's gas resources.

Other potential mineral resources on the MNF include peat, iron, manganese, high alumina clay, phosphate, and construction materials like limestone, sandstone, and gravel. Significant development of these resources is not expected in the foreseeable future.

RANGE RESOURCES

The grazing program on the Forest is relatively small and has been declining over the years. In 1986, approximately 7,000 acres of grazing lands were managed for grazing by sheep, cattle, or horses. Since then, several grazing allotments have been abandoned, mostly due to inadequate funds to maintain their open condition and repair/replace allotment fences.

The 52 allotments still administered on the MNF are located primarily on limestone and limey shale soils. The normal grazing season is May 15 through October 15 of each year.



Figure 12. View of Allegheny Battlefield Grazing Allotment.

Annually, about 42 of these allotments are grazed while others remain vacant. Allotments may be vacant to rest them and improve forage, for administrative reasons, or because range facilities and/or forage quality are poor and no bids are made when they are advertised for lease.

3. THE FORESTS' ROLE IN MAINTAINING FOREST ECOSYSTEM HEALTH & VITALITY.

✚ Forest Health Protection and Air Quality are two program areas that address the maintenance of forest ecosystem health and vitality. Page 40 of the *Forest Plan* identifies the MNF's role in maintaining forest ecosystem health and vitality:

1. Protect natural...resources of the Forest
...from damage or degradation.

FOREST HEALTH PROTECTION

✚ Forest insects, diseases, fire, and weather events (wind, ice, floods) also played a role in developing the existing vegetative patterns of the MNF. Their effects have sometimes been dramatic and devastating, such as the early 20th century fires and floods that scoured the watersheds they affected.

✚ No major native forest insects and diseases are currently affecting the MNF. Native insects and diseases are normal parts of forest ecosystems and the changes they bring about are usually gradual and sparsely distributed at large landscape scales. However, situations arise where even native insects and diseases could cause profound changes that are inconsistent with human values and expectations.



Figure 13. View of a gypsy moth.

✚ Gypsy moth, hemlock wooly adelgid, and beech bark complex are non-native agents of concern. Large landscapes on the MNF are at

risk for damage from these agents because most mature stands on the MNF are of similar age.

✚ Such damage could lead to positive increases in snags and woody material on the forest floor; but it also could increase fire danger and drastically alter species diversity across the Forest. For example, chestnut blight drastically reduced chestnut populations in West Virginia; today, researchers are working to develop chestnut stock that is resistant to blight so it can recover some of its former range.

✚ Invasive plant species like multi-flora rose and autumn olive have been increasing within many of the grazing allotments on the MNF. If action is not taken, these species could overtake the allotments in which they exist.

AIR QUALITY

✚ The uniform haze, frequently blanketing the mountains, is largely the result of sulfate particles formed from the emissions of fossil fuel-fired power plants that generate electricity.



Figure 14. Visibility from Seneca Rocks on a hazy day.

✚ Visibility is poorest in the summer months when sulfate particles have their greatest abundance. Sulfates, as well as nitrates, contribute to atmospheric deposition that is affecting the terrestrial and aquatic ecosystems on the MNF. These pollutants come from burning fossil fuels, for power generation, industrial processes and to power vehicles.

✚ Low-level ozone is another threat to air quality. It is primarily a by-product of automobile exhaust, and can affect the growth of some plants and trees and make breathing difficult for susceptible humans.

4. THE FORESTS' CONTRIBUTION TO THE CONSERVATION AND MAINTENANCE OF SOIL AND WATER RESOURCES.

✚ The same broad goal related to maintaining forest ecosystem health and vitality also applies to the maintenance of soil and water resources:

1. Protect natural...resources of the Forest from damage or degradation (*Forest Plan*, p. 40).

SOILS

✚ Sedimentary rocks underlie the MNF, resulting in beautiful scenery, valuable mineral resources, excellent timber production, grazing opportunities, and generally good water quality.



Figure 15. View of Honeycomb Rocks.

✚ Soils vary widely in productivity, with north- or east-facing sites generally being cooler, moister, and more productive than south- and west-facing slopes. Soil productivity is affected by many factors, especially soil depth and moisture supply. Soil loss and soil compaction are two threats to productivity. Highly erodible soils and soils from steeply dipping, thinly bedded sedimentary rock are unstable when disturbed by deep cuts.

✚ Another hazard to soil productivity is acid production that can occur when substrate high in sulfides are exposed, such as during road construction. New road construction, log landings, and skid roads have the potential to contribute to erosion and sedimentation if proper erosion controls procedures are not in place.

WATER RESOURCES

✚ The Monongahela is astride the Eastern Continental Divide and is drained by both Potomac and Ohio River Systems. The headwaters of five major river systems originate on the Forest: Monongahela, Potomac, Greenbrier, Elk, and Gauley.

✚ Water quality on the MNF is generally good. Reservoirs, streams, and rivers constitute approximately 3,200 acres of the Forest. Also, numerous small waterholes/ponds have been developed over time for wildlife. Several rivers have been studied for potential classification in the National Wild and Scenic Rivers System.

✚ Streams and their banks, bed, and vegetation create a unique environment called the riparian ecosystem. The riparian area is habitat for a variety of plants and animals. Anglers treasure one of its inhabitants –wild trout.

✚ Trout require several habitat components: cold water, a gravel streambed that supports waterborne insects, food, and protection from predators. Streamside vegetation is critical for maintaining trout habitat.



Figure 16. View of large woody debris in a stream.

✚ For example, when a tree falls into a stream, trout can feed on insects attached to the tree's decaying, woody parts. The fallen tree and its limbs provide cover for the fish. Also, streamside vegetation acts as a barrier against soil loss and soil compaction.

✚ In recent years, the Forest has been focusing management efforts to improve riparian habitat and aquatic habitat conditions. For example, the MNF has been striving to rehabilitate past and current transportation systems to help prevent sediment from roads from adversely impacting aquatic habitat.

✚ Hundreds of miles of railroad grades and old roads, which were abandoned after turn of the century harvesting, are adversely impacting natural drainage patterns and contributing sediment to streams.

✚ As a result, between 60 and 70% of the surveyed streams in the MNF have elevated fine sediment levels in spawning gravels. These high sediment levels, and acidity and lack of large woody debris in stream courses, are adversely impacting aquatic resources and have the potential to seriously impair trout reproduction.

✚ Abandoning, repairing, revegetating, and stabilizing old roads and grades and restoring natural drainage are very costly. An estimated 17 million dollars worth of watershed restoration needs have been identified on the Forest.

✚ The Forest has been working to complete high priority watershed assessments to, among other things, identify watershed rehabilitation projects. Significant public support for the Forest's watershed restoration efforts exist, as evidenced by numerous past and potential partners from private industry, other federal and state agencies, academia, and groups such as Trout Unlimited and the Shavers Fork Coalition.

✚ With the help of multiple partners, extensive watershed restoration work already has been accomplished at the head of the Shavers Fork of the Cheat River. The work in the Shavers Fork Watershed has stopped active erosion and improved watershed health; it has also benefited

recreation users and addressed many of the main goals of the Forest's recreation program.

5. THE MNFs' CONTRIBUTION TO MAINTAINING AND ENHANCING LONG-TERM MULTIPLE SOCIO-ECONOMIC BENEFITS TO MEET THE NEEDS OF SOCIETIES.

✚ The *Forest Plan* contains several broad goals related to this criterion (pages 37 and 39-40):

1. Manage the spectrum of recreation opportunities that exist on the Forest with an emphasis on recreation activities that require a large land area, such as hiking or hunting, and facilities to support that use.
2. Manage National Forest Wilderness in order to preserve the Wilderness attributes for which the areas were designated.
3. Improve the social welfare of citizens through education, training, employment, and public safety programs.
4. Develop and maintain a high level of open communication and understanding with the public.
5. Permit use of National Forest land by others, under special use or lease authorities, that is compatible with National Forest goals and objectives and will contribute to the improved quality of life for local residents.
6. Protect natural and cultural resources of the Forest and the health and safety of visitors from damage or degradation.

RECREATION

✚ The MNF receives heavy recreation use. It is the fourth largest National Forest in 20 northeastern states and is within a day's drive of one-third of the population of the United States.

✚ The Forest is a recreation destination and major tourism attraction for approximately three million visitors annually. The Forest's scenic and

recreational attributes led to the designation of the Spruce Knob-Seneca Rock National Recreation Area, five wildernesses, two scenic areas, and several National Natural Landmarks.

Recreation facilities on the MNF include two visitor centers, twenty-five campgrounds, seventeen picnic areas, and over five hundred miles of multiple-use trails.



Figure 17. Cranberry Glades boardwalk.

Common recreation opportunities include:

- Berry Picking
- Wildlife Viewing
- Canoeing
- Cross Country Skiing
- Driving for Pleasure
- Fishing
- Rock Climbing
- Swimming
- Camping
- Hiking
- Nature Study
- Hunting
- Mountain Biking
- Horseback Riding
- Picnicking
- Spelunking
- Trapping

As the above shows, recreation opportunities range widely from traditional developed site camping to self-reliant treks in the wildernesses and backcountry areas of the Forest.

The Forest's extensive backwoods road and trail system is used for hiking, mountain biking, horse riding, etc. Many miles of railroad grades serve as links in the recreation use of the Forest.

The longest is the Gladys to Durbin West Fork Railroad Trail, which is 23 miles long.

Entrepreneurs and tourism commissions have begun aggressively marketing the recreational potential of the Forest, and the number of tourism-related businesses is growing rapidly. However, The Forest's infrastructure is aging and is in need of costly repairs to support increased visitor use. At the same time, recreation operations and maintenance budgets have declined precipitously over the years.

To meet expected demands, improve service to visitors, and reduce reliance on appropriated funds, the Forest has placed many areas under fee demonstration and concessionaire management. These efforts allow money generated at a given site to be reinvested to maintain and improve that site.



Figure 18. View of a lake on the MNF.

To further improve recreation experiences for visitors, the Forest has been following up on the abounding opportunities to work with rail-trail groups, mountain biking groups, local conservation organizations and local communities.

Seneca Rocks Discovery Center visitors already benefit from the Forest's partnerships with the National Forest Foundation, Eastern National Forests Interpretive Association, State of West Virginia, and West Virginia University. The MNF is also exploring partnership opportunities to improve program delivery in other arenas like wildlife and timber management.



Figure 19. Seneca Rocks Discovery Center

WILDERNESS MANAGEMENT

Five federally designated Wildernesses exist on the MNF: Otter Creek, Dolly Sods, Laurel Fork North, Laurel Fork South, and Cranberry; and one National Recreation Area, Spruce Knob - Seneca Rocks. These Wildernesses make up 9 percent of the Forest's land base (78,000 acres).

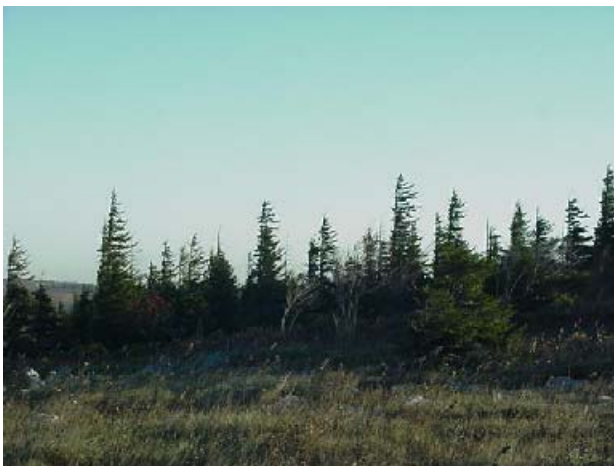


Figure 20. View of Dolly Sods Wilderness.

At the time the *Forest Plan* was approved in 1986, present use of MNF wilderness was thought to be about 65,000 Recreation Visitor Days (RVD's) per year. It was estimated that the areas could accommodate about 160,000 RVD's per year before significant resource damage or unacceptable social conflicts result.

EDUCATION, TRAINING, EMPLOYMENT, & PUBLIC SAFETY PROGRAMS

The MNF provides counties and their people with natural resources, recreation opportunities, transportation systems, and fire protection. The Forest also provides routine cash payments, both Payment in Lieu of Taxes and 25% of the receipts from timber, grazing, land uses, minerals, and recreation uses (which counties use for roads and schools).

The MNF's ability to provide education, training, employment, and public safety programs, as well as 25% funds, has been severely affected by changes in its Forest staff.

The managerial organization of the MNF has dramatically declined since the *Forest Plan* was approved in 1986. In 1983, the Forest employed about 190 employees, including 29 seasonal employees hired for the May to September field season. Manpower programs such as Senior Community Service Employment Program (SCSEP), Youth Conservation Corp. (YCC), and volunteers added to this work force.

The Forest management staff consisted of a forest supervisor, one deputy forest supervisor, six district rangers, and five staff officers.

Over time, MNF staff has been cut almost in half. In FY 2000, the forest had 106 permanent employees, augmented by 9 seasonal employees, 67 SCSEPs, 4 YCCs, and 86 volunteers.

Districts have been consolidated and four ranger positions remain--one at Parsons, Bartow, Marlinton, and Richwood. The deputy forest supervisor position and all five staff positions have been eliminated; two Assistant Forest Supervisors have assumed their workload.

To accomplish program objectives, the Forest has increased its reliance on volunteers and its efforts to form partnerships so Forest resources can be combined with the resources of other parties to support activities of mutual benefit.

Grants, cooperative agreements, Memoranda of Understanding, Road Agreements, Participating

Agreements, Challenge Cost Shares, and other instruments are being used to meet objectives in multiple program areas.

- Construct and maintain a transportation system that will allow efficient management and safe public use of National Forest lands.

HERITAGE RESOURCES

Heritage resources are the artifacts and archeological sites created by human ancestors and the areas used or affected by the way of life, traditions, and religions of these inhabitants.



Figure 21. View of a heritage site near the Seneca Rocks Discovery Center.

As of September 2000, 383,033 acres of the MNF had been surveyed and 1,703 heritage resources found. Many prehistoric and historic archeological sites exist on the Forest. Most have been recorded during compliance-related surveys prior to projects like timber sales, road construction, or recreation site development.

6. THE FOREST'S CONTRIBUTION TO THE FRAMEWORK FOR CONSERVATION AND SUSTAINABLE MANAGEMENT

The *Forest Plan* contains two broad goals related to this criterion (see pages 39-40):

- Improve the efficiency and effectiveness of National Forest Administration through land acquisition, exchange, or donation.

LAND ACQUISITION, DONATION, & EXCHANGE

The MNF originated from the "Monongahela Purchase" in 1915, when 7,200 acres were acquired in Tucker County. Actual designation of the MNF occurred on April 28, 1920.

Most land for the MNF was purchased between 1915 and 1930. Almost all the land purchased then had been cutover as well as burned. Some acres had been used for grazing livestock.

Today the MNF consists of over 909,000 acres of fairly contiguous federal ownership. It is about one hundred miles from north to south and forty miles wide. It covers about 6% of the State of West Virginia and resides within 10 counties:

Barbour	Nicholas	Preston	Webster
Grant	Pendleton	Randolph	
Greenbrier	Pocahontas	Tucker	

Land trades and purchases usually proceed as opportunities become available, and when legislative and public support has existed. The following are the priorities for land acquisitions:

- Lands or rights that would become part of a designated Wilderness.
- Lands or rights needed to protect or reestablish threatened or endangered species of plants or animals.
- Lands or rights needed to implement the *Forest Plan* in the Spruce Knob – Seneca Rocks National Recreation Area.
- Lands or rights that would become part of Management Prescription 6.2, 8, and 7 (in descending order).
- Lands adjacent to rivers or streams regardless of Management Prescriptions.

6. Lands or rights that would become part of Management Prescription 6.1, 3, 1.1, 2, or 4.

TRANSPORTATION SYSTEMS

At the time the *Forest Plan* was approved in 1986, about 1,230 miles of roads were inventoried and maintained on the MNF (*FEIS* 3-6). An estimated 3,376 miles of road existed on the Forest (*FEIS* 3-7). These included system roads (1207 miles), State highways (334 miles), temporary roads (139 miles), railroad grades (468 miles), logging roads (641 miles) and miscellaneous roads (587 miles).



Figure 22. Fall view of the Highland Scenic Highway.

In recent years, an extensive road inventory has been conducted to locate Forest roads and data about their condition. The use of global positioning systems has identified roads that weren't previously inventoried and provided more accurate mileages for known roads.

Today, about 3,665 miles of road are known to exist on the Forest:

1. **System roads** (also referred to as Classified Roads) are designed for decades of use. Today, the Forest manages approximately 1,786 miles of system roads (Forest Infrastructure Database). Of these system roads, 1,096 (61%) are closed to vehicle traffic year round; 538 miles (30%) are open to vehicle traffic year round; and an additional 152 miles (9%) are open seasonally (Infrastructure Database).
5. **Temporary roads** are designed for use during specific projects, and are "put to bed"

by installing water bars and seeding the surface after project completion. Temporary roads and woods roads combined are referred to as "Unclassified Roads." Currently, 1,879 miles of unclassified roads exist on the MNF.

6. **Woods roads** are neither system nor temporary roads; they are travel ways in the woods created by past activities (old logging or mining roads or railroad grades). The canopies over most woods roads are closed or nearly closed. Because of area reviews, woods roads have been abandoned, or converted to a trail, wildlife opening, or system road.

As previously mentioned in the discussion of water resources, the Forest has been strengthening its efforts to abandon or rehabilitate roads that are currently causing adverse aquatic effects. These restoration efforts are expected to take a long time and a lot of resources to complete.

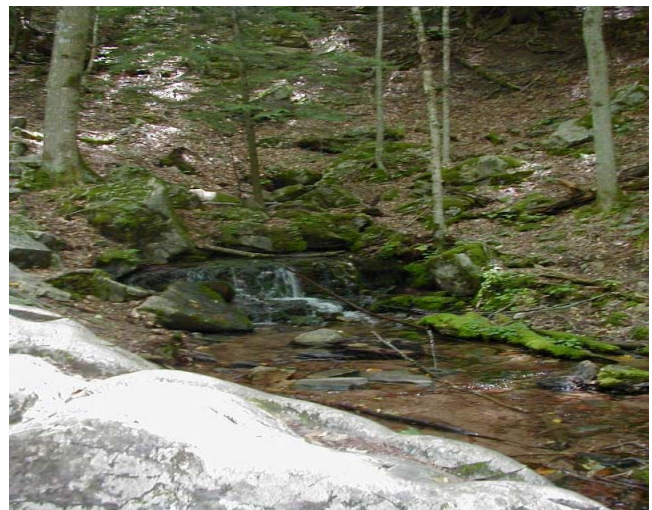


Figure 23. View of a riparian area.

Chapter II of this report will present some of the FY 2000 monitoring activities that pertain to the various programs discussed above. The chapter is organized according to the goals of the Government Performance and Results Act (GPRA) that are also reflected in the Forest Service Strategic Plan. The applicable goals are:

1. Ecosystem Health.
2. Multiple Benefits to People.
3. Effective Public Service.